LEGISLATIVE LIBRARY OF BRITISH COLUMBIA
3 3298 00271 5705

BRITISH COLUMBIA

REPORT ON THE OIL AND GAS COMPLIANCE REVIEW

JANUARY AND MARCH, 2001

Prepared by the Ministries of Water, Land and Air Protection, Forests and the Oil and Gas Commission

TABLE OF CONTENTS

EXECUTIVE SUMMARY 2
- Definition of Non-Compliance 2
- Review Results 3
- Compliance Rates of Targeted Activities 3
- Conclusions and Recommendations 4
- General Recommendations 4

METHODOLOGY 7
- Definition of Non-Compliance 8

REVIEW RESULTS 9
- Stream Crossings 9
- Sewage Disposal Campsites 10
- Wellsites-Producing Wells, Drilling, and Construction 11
- Special Wastes-Invert Cuttings 11
- Water Usage By Camps, Drilling Rigs, And Seismic Crews 13
- Forestry Practices of Crews Constructing Seismic, Camps, Access Roads, Drilling Leases, and Pipelines 14
- Gravel-Trespass, Unauthorized Removal and Use. 15

RESULTS OF TARGETED ACTIVITIES 15
- Good Practices Observed 15

CONCLUSIONS AND RECOMMENDATIONS 18

ACTION PLAN FOR THE OIL AND GAS REVIEW 2000/2001 19

BRITISH COLUMBIA

Report on the Oil & Gas Compliance Review January and March, 2001

Prepared by the Ministries of Water, Land and Air Protection, Forests and the Oil and Gas Commission

Executive Summary

In 2000 concerns had developed within the Ministries and Agencies responsible that the significant increase in oil and gas activity occurring in North Eastern British Columbia might also result in increased non-compliance with legislation. Following discussions between BC Environment (now the Ministry of Water, Air and Land Protection, WALP), Oil and Gas Commission (OGC), Ministry of Forests (MOF), British Columbia Assets & Lands Corp. (BCAL), and the federal Department of Fisheries and Oceans (DFO), a decision was made to conduct two inter-agency compliance reviews.

Each review would last approximately two weeks with the first to take place in January and the second in March of 2001. The purpose of the reviews was to determine the level of compliance of the oil and gas industry with provincial and federal legislation pertaining to environmental protection and public safety.

Multi-ministry/agency teams conducted 540 compliance inspections and reviewed the following activities:

- Stream crossings, works in and about a stream, snow/ice fills, and ice bridges
- Sewage disposal at campsites
- Well sites, producing wells, drilling and construction
- Special Wastes: registration of generation; transportation, and disposal of invert drilling muds and cuttings
- Water usage by camps, drilling rigs and seismic crews
- Forestry practices of crews constructing seismic, camps, access roads, drilling leases and pipelines
- Gravel, Crown Land trespass, unauthorized removal and use

The teams consisted of representatives from the various ministries and agencies and each included a minimum of one Conservation Officer and OGC Inspector.

Definition of Non-Compliance

To put the issue of non-compliance into perspective, it is important to establish a clear distinction between minor and major non-compliance. "Minor" non-compliance consists of those issues that do not have an immediate or significant impact on the environment or public health and safety. They may also be dealt with via instructions or through a compliance notice versus formal enforcement actions. "Major" non-compliance issues are those that have an immediate or significant impact on the environment or public health and safety.

The table on page 7 was developed as an aid for future reviews and should clarify the issue considerably for both government and industry.

Review Results

A total of 540 inspections were conducted during two 10-day review processes. Non-compliance ranged from minor to major. The review teams found the major non-compliance rate to range from a high of 44% for activities related to stream crossings to a low of 0% for gravel related issues. Minor non-compliance ranged from 57% for well sites to 0% for special wastes, all the non-compliance associated to special waste issues were major.

The review found 79% compliance with major requirements of the legislation and 49% compliance with all the requirements of the legislation pertaining to the targeted activities. In many cases, non-compliance was dealt with at the time of inspection and companies acted quickly to rectify the situation when requested. Major non-compliance issues were dealt with by enforcement action in the form of tickets, compliance orders with time lines (usually 24 hours to correct the situation) or longer-term investigations.

The review teams also found variability amongst company compliance rates; some had high overall compliance rates while others were frequently in non-compliance.

Significant areas of major non-compliance included sewage disposal, the handling of invert cuttings (special wastes) and stream crossings.

Compliance Rates of Targeted Activities

Type	Total	Compliance	Minor Non-Compliance	Major Non-Compliance	% of Major Non-Compliance
Stream Crossings	169	74	21	74	44
Sewage Disposal	68	29	17	22	32
Well Sites	152	61	87	4	3
Special Wastes	7	3	0	4	57
Water	48	22	20	6	13
Forestry	67	47	18	2	3
Gravel	29	28	1	0	0
Totals	**540**	**264**	**164**	**112**	**21**

Conclusions and Recommendations

General

The benefits of this review were many, one being the identification of activities requiring the attention of government and industry to increase compliance rates (see recommendations). The identification of major non-compliance issues will assist agencies to track non –compliance, identify priorities, implement strategies and allocate resources accordingly.

A secondary benefit was the increased teamwork amongst the ministries and agencies involved. In the past, all agencies worked together but not on as large a scale as experienced in this review. Through this process, staff were able to share their expertise with other ministry team members. Technical staff from all agencies now feel more comfortable working together and are planning future joint inspections. The review also allowed agencies to travel to locations they normally would not be able to inspect due to budget constraints.

There are a number of recommendations to increase compliance. These include improved education of the industry, continued reviews, streamlining communication between ministries and agencies, clarification of permits and licences with respect to authorized activities, and a system of results and performance based compliance and enforcement, focusing less on process and more on results.

The following recommendations are general in nature. Recommendations pursuant to specific activities, including suggested activities for government and industry to improve compliance rates can be found at the conclusion of the report.

General Recommendations

The intent of the review was to determine the rate of compliance with applicable legislation on all oil and gas development activities in north-eastern BC, and then to make recommendations to improve compliance rates where needed. The following are the recommendations for government and industry to consider.

1. Reviews should be conducted on an annual basis to encourage compliance, discourage non-compliance and identify companies achieving exceptional standards of work. Annual reviews will not only track current compliance rates but also allow the ministries and agencies to follow up on non-compliance issues identified in previous reviews to ensure an acceptable compliance rate is achieved.

2. Education programs are beneficial at all field levels. The review found many of the engineers and workers were not familiar with the legal requirements for operating in BC with respect to environmental issues. Education programs can be offered to the industry in the form of presentations, information letters, workshops and use of the internet. Government should also be developing easy to use handbooks for those working in the field. Examples of topic areas are stream crossings, waste management and water sources. These handbooks would be useful for such personnel as managers, engineers and supervisors as well as those working with equipment in the field who are expected to make decisions on site.

3. Sign-off documents should be developed by the OGC for use by drilling and other contractors in the oil and gas industry. The sign-off instrument would detail specific standards or requirements for conducting a specific activity. The contractor or person responsible would sign the document stating that they had read it, understood the requirements and agreed to comply. Such a strategy should be given broad usage and also, be used to target specific compliance issues that arose during previous reviews and inspections.

4. In conjunction with the recommendation in (2), there should be annual inter-agency workshops conducted prior to the busy drilling season. Primary purposes of the workshop would be: review each agencies mandates; identify legislation and priority concerns; improve participants working knowledge of the industry by reviewing new technologies and working practices; identifying areas of high activity; facilitating team building and encouraging other team projects. Participating agencies should included Forests, Pollution Prevention (WALP) and the Conservation Officer Service (COS), (WALP), the Oil and Gas Commission, Health and the Department of Fisheries and Oceans.

5. A review of the current guidelines and legislation should be undertaken to determine if changes can be made to improve compliance. This includes the current Oil and Gas Handbook. This review should also be done in conjunction with the current review of the OGC's compliance and enforcement model.

6. Review forms need to be developed so that all agencies use the same format. This will ensure a consistent approach. In addition, reporting formats for future compliance reviews should be standardized so that compilation of information and data will be easier when generating reports.

7. Compliance terms for future field inspections have to be defined clearly so that the differences between minor and major infractions are clear to all staff participating in the review. The table on page 7 is an example of a guide for differentiating between minor and major compliance issues.

8. Companies with exceptional compliance records (results based) should be recognized and rewarded in some manner. This could include results based permitting; e.g. companies with good track records may be given more leeway or checked less frequently than those with poor records.

9. The rapidly increasing level of industrial activity needs to be complimented by a proportional increase in agency compliance and enforcement staff. Current staffing levels of Compliance and Enforcement (C&E) staff appear to be strained to respond to issues that exist out on the ground.

10. A problem analysis and development of a possible one-window delivery model for compliance and enforcement activities should be undertaken. Such a model could conceivably result in efficiencies and reduce confusion as to which agency has lead responsibility for the statute in question.

11. Develop a results based system to increase compliance. This should include an "acceptable" target level of compliance for each type of activity.

12. The snowfills and ice crossings issues need to be addressed by all agencies in conjunction with DFO. This should include discussion and agreement about the composition of material used in snowfills, specifically the problem of organic and mineral soils becoming entrained in fill material. The discussions should result in standards being defined, in handbook format, for industry purposes.

13. More work has to be done between the Ministry of Health and other agencies to ensure that guidelines for sewage disposal are clearly defined and communicated to industry.

14. Water removal permits need to be reviewed so that more guidance is provided to water haulers. This should include instructions on exactly what water sources are permitted. It is recommended that borrow pits containing fish not be permitted for water allocation and that the Ministry of Water, Land and Air Protection provide OGC with a list of stocked borrow pits including their locations.

15. Develop an action plan to address the issues listed above. (Completed, see page 19)

Methodology

The review teams were developed in late 2000 by a steering committee consisting of senior staff of the Oil and Gas Commission (Gary Miltenberger, Director of the Compliance and Enforcement Branch), BC Environment (Andy Ackerman, Fish & Wildlife Manager), Ministry of Forests (Lance Ollenberger, Operations Manager) and the Conservation Officer Service (Ben Mitchell-Banks, Senior Conservation Officer). The teams consisted of a multi-ministry/agency mix to ensure that each team had a diversity of expertise from each ministry/agency. A typical team consisted of one Conservation Officer, one OGC inspector and representatives from the Ministry of Forests, Pollution Prevention, Habitat, and Water and in the case of the second review, Department of Fisheries and Oceans. Each team had a captain who was responsible for logistics, safety, scheduling and co-ordination with the steering committee. The captains also attended planning and review meetings of the steering committee.

The teams were assigned specific areas:

- North - Helmet, Peggo Pesh, Kwokullie Lake, Cabin Lake, Shekillie River, Dessan, Thetlanndoa, Yoyo, Clarke Lake, Maxhamish Lake,
- Middle- Buick, Nig, Fireweed, Birch, Jedney, Ring Border, Velma, Ladyfern, Chinchaga, Prespatou, Beatton, Mike, Trutch, Buckinghorse
- South- Sikanni River, Chicken Creek, Mile 95 Road, Farrell Creek, Graham River, Tumbler Ridge, Bull Moose Mountain, Chetwynd

The first phase of the review was conducted January 16-25th, 2001 and the second conducted March 12-23, 2001.

The focus of the review was:

- Stream crossings, works in and about a stream, snow/ice fills, and ice bridges
- Sewage disposal at campsites
- Well sites, producing wells, drilling and construction
- Special Wastes: registration of generation; transportation, and disposal of invert drilling muds and cuttings
- Water usage by camps, drilling rigs and seismic crews
- Forestry practices of crews constructing seismic, camps, access roads, drilling leases and pipelines
- Gravel, Crown land trespass, unauthorized removal and use

The review was conducted in two phases to capture the different activities of the industry during these periods. The January review concentrated on exploration, road construction and drilling while the March review concentrated on pipelines construction and stream crossings. The latter part of March is a critical period for construction and stream crossings due to the warming weather and approach of spring break-up.

To ensure that all review team members had a good working knowledge of the issues they would be addressing, one-day orientation sessions were held at the beginning of each review. Speakers from the various ministries and agencies oriented the team members to their legislation and any non-compliance issues of concern. It was understood that as the review teams came across issues that fell outside their area of expertise, detailed notes and pictures would be taken and future follow-up would occur by the ministry or agency responsible. Standard review forms were also developed to ensure consistency of reporting by the teams.

Other issues addressed at the orientation sessions were worker safety and any specific Workers Compensation Board (WCB) regulations pertaining to the team members. All team members were required to have current Level 1 Occupational First Aid, Transportation Endorsement, and H2S training.

Definition of Non-Compliance

In order to put the issue of non-compliance into a proper perspective, it was important to establish a clear distinction between minor and major non-compliance. "Minor" non-compliance consists of those issues that do not have an immediate or significant impact on the environment or public health and safety. They may also be dealt with via instructions or through a compliance notice versus formal enforcement actions. "Major" non-compliance issues are those that have an immediate or significant impact on the environment or public health and safety.

<table>
<tr><th colspan="2">Type #1-No Issue</th><th colspan="2">Type #2-Issue is minor</th><th>Type #3
Issue is major</th></tr>
<tr><td colspan="2">Site inspection conducted and found to be compliant with regulatory requirements</td><td colspan="2">Site inspection evaluated, non-compliant with regulatory requirements. Not considered an immediate or significant impact on the environment or public health and safety</td><td>Site inspection evaluated, non-compliant with regulatory requirements but considered an immediate or significant threat to the environment or public health and safety</td></tr>
<tr><td>Make observation comments:</td><td>Identify any risk of non-compliance</td><td>Identify trivial non-compliance:</td><td>Identify minor non-compliance:</td><td>Identify major or significant non-compliance:</td></tr>
<tr><td>-Note good work.
-Note any substandard action; clarify standards.</td><td>-Make comments and flag for future inspection if the site practice observed is likely to lead to non-compliance.</td><td>-Indicate concerns; indicate no action required if problem is small enough in scope that problem could be evaluated as transitory or insignificant.</td><td>-Indicate compliance concern; provide detail on form that evaluates problem to have minor severity or impact
-flag for future inspection
-Problem may need assessment with senior staff for legal action or official warning.</td><td>Provide detail to clarify severity and/or impact on inspection form: *forward information to senior staff for further legal determination of alleged non-compliance and obtain consensus and direction for action assessment to resolve problem</td></tr>
</table>

Review Results

A total of 540 inspections were conducted during the 4-week review process. Non-compliance ranged from administrative (generally considered minor) to major. The review teams found the major non-compliance rate to range from a high of 44% for activities related to stream crossings to a low of 0% for gravel issues.

Stream Crossings

Conclusions

All three areas reviewed had unacceptable rates of major non-compliance as the following results illustrate: North-39%, Middle-58% and the South-22%. Stream crossing non-compliance has the ability to seriously impact fish habitat, recreational fisheries and First Nations subsistence fisheries.

There are issues with the amount of dirt in the snowfills and ice crossings. When OGC issues the authorization to build these crossings, the authorization states that the crossings must be of clean snow and ice. In low snow years (such as the winter of 2000/01), this can be a challenge for many companies as debris may become mixed with the snow or ice used to construct the crossing. Some companies were innovative and used snowmaking equipment to generate clean fill for crossing construction.

In the March review, the North team found a number of crossings left unremoved after the companies had pulled out of the area. The OGC staff ordered those companies to return and remove the crossings. A significant issue arose around the ice bridge crossing on the Prophet River. The companies attempted to continue use of this bridge while water was overflowing it, a shut down order was subsequently issued by OGC to stop the practice.

Team	Total	Compliance	Minor Non-Compliance	Major Non-Compliance	% of Major Non-Compliance
South	50	35	4	11	22
Middle	86	22	14	50	58
North	33	17	3	13	39
TOTAL	169	74	21	74	44

Good practices noted: proactive stream crossing avoidance during seismic activities, in some cases the activities undertaken exceeded the requirements of the approved logging plan.

Recommendations

Government

- Development of a stream crossing guidebook/handbook for use by industry (currently underway). The publication should include innovative techniques that can be used in low snow years.
- Practical and realistic guidelines for industry need to be developed for snowfills and ice crossings. There needs to be consensus as to what constitutes acceptable fill material for snowfills. Input will be needed from all affected ministries, agencies and industry on this issue.

- Produce an information release to be posted on the OGC website and otherwise dispersed to industry groups advising of the non-compliance issues identified during the review so corrective measures can be implemented.
- Continued C&E effort by agencies: OGC, MOF, COS, DFO to ensure compliance with standards.

Industry

- Develop techniques for construction in low snow years for use in guidebooks and company training manuals.
- Greater attention to be paid to planning and construction of stream crossings during exploration and development activity.

Sewage Disposal Campsites

Conclusions

Sewage disposal at campsites was often poorly managed thus creating health risks for workers and the general public. Sumps made of porous materials, disconnected sewage lines and sewage discharging onto the ground was common in some areas. In one case the Ministry of Health was called in and the camp shut down because of it's unsanitary condition. The larger established camps had fewer problems than the smaller camps associated with the drilling rigs.

The review teams noted that on many rig sites, the engineer in charge of the operation had little knowledge of BC's requirements for such things as sewage disposal. Many of these engineers are hired from outside of BC and are brought in for the specific well site. Although common sense should dictate that proper sewage disposal is required the review teams found many sites where unacceptable practices were in use.

Team	Total	Compliance	Minor Non-Compliance	Major Non-Compliance	% of Major Non-Compliance
South	22	8	3	11	50
Middle	33	16	6	11	33
North	13	5	8	0	0
TOTAL	68	29	17	22	32

Recommendations

Government

- Clearly communicate the requirements of the Ministry of Health to the operators of camps during the OGC approval process by including Health's requirements in the approval documents.
- Develop an acknowledgment of responsibility for contractors and operators of rigs and camps to sign off. The sign off would indicate the person had read the documents included in the permits, understood them and agreed to comply with the requirements.
- Produce an information release to be posted on the OGC website and otherwise dispersed to industry groups advising of the non-compliance issues identified during the review so corrective measures can be implemented.

Industry

- Industry to design and implement a program to educate their contractors and staff as to the acceptable methods of managing human wastes. An internal process needs to be implemented by companies to ensure compliance by their contractors with Ministry of Health standards.

Wellsites-Producing wells, drilling and construction

Conclusions

Wellsite inspections revealed a varying degree of compliance. Of the 91 instances of non-compliance identified, 87 were minor in nature and OGC staff dealt with them on the spot. The low rate of major non-compliance is indicative of the success of the OGC's and WCB's current inspection program. The high rate of minor non-compliance indicates there is still a way to go with this sector to achieve a fully satisfactory result.

The review teams noted that on many rig sites, the engineer in charge of the operation had little knowledge of BC's requirements for such things as water sourcing and hauling. Many of these engineers are hired from outside of BC and are brought in for the specific drilling project.

Team	Total	Compliance	Minor Non-Compliance	Major Non-Compliance	% of major Non-Compliance
South	41	19	19	3	7
Middle	84	27	57	0	0
North	27	15	11	1	4
TOTAL	152	61	87	4	3

Recommendations

Government

- Continue the current practice of prioritizing drill rig inspections using the criteria of new rigs to the province, drill rigs using new technology, wells being drilled in sensitive areas and drill rigs with the a history of non-compliance.
- Produce an information release to be posted on the OGC website and otherwise dispersed to industry groups advising of the non-compliance issues identified during the review so corrective measures can be implemented.

Industry

- Industry to implement a program to self-audit drill rigs to ensure compliance with OGC, WCB and Industry Recommended Practices (IRP's).

Special Wastes-Invert Cuttings

Conclusions

The review teams found some major problems with the handling of invert cuttings. Invert cuttings are drilling muds that use hydrocarbons as a base. If the hydrocarbon content is greater than 3%, they are classified as Special Waste under the *Waste Management Act* and Regulations. Companies using muds that are classified as special wastes are required to register the sites as generators of special wastes with the Pollution Prevention Branch of WLAP. A generator number is then assigned to the generating company.

When the special wastes are shipped, a three-part manifest is used. Part one of the manifest is filled out by the generator/shipper, the transportations company licenced to transport special wastes, completes part two. The receiver of the special waste completes the third section of the manifest. Copies of the manifest are sent to WLAP for inclusion in SWIS (Special Waste Information System).

SWIS allows for the cataloguing and tracking of special wastes generated, transported, stored and disposed of in the province and is a cornerstone of special waste management.

It was found that some drilling operations were not registering their sites as generators of special wastes and were not manifesting the transportation or disposal of the invert cuttings. This results in a situation where the generation, transportation and disposal methods and locations are not known, as a consequence the risk to the environment could be very high. Although the sample size is small, it is a concern that there was an average of 57% non-compliance with legislation. On going work on this issue shows that the situation is continues.

More information on special waste can be found on the B.C. Pollution Prevention Website at www.elp.gov.bc/epd/epda/contam_sites/index.html

Team	Total	Compliance	Minor Non-Compliance	Major Non-Compliance	% of Major Non-Compliance
South	3	1	0	2	66
Middle	4	2	0	2	50
North	0	0	0	0	0
TOTAL	7	3	0	4	57

Recommendations

Government

- Increases compliance and enforcement efforts to be targeted to drilling operations using invert drilling muds.
- OGC and WLAP to implement a system of identifying drilling operations that will use invert drilling muds at the application stage. Companies should be required to advise OGC if invert drilling muds are to be used if their use was not identified in the initial application.
- Develop an acknowledgment of responsibility for contractors and operators of rigs and camps to sign off on. The signoff would indicate the person has read the documents included in the permits, understands the requirements for the use invert muds and agrees to comply.
- Produce an information release to be posted on the OGC website and otherwise dispersed to industry groups advising of the non-compliance issues identified during the review so corrective measures can be taken.

Industry

- Industry to design and implement a program to educate their contractors and staff as to the acceptable methods of managing special wastes. An internal process needs to be implemented by companies to ensure compliance by their contractors with the standard.

Water Usage by camps, drilling rigs and seismic crews

Conclusions

Compliance with the *Water Act* ranged from fair to good depending on the permit holder. There were issues with water haulers illegally removing water from beaver ponds and streams. Another issue that surfaced is the removal of water from borrow pits which contain fish transplanted by the provincial government for recreational use.

Team	Total	Compliance	Minor Non-Compliance	Major Non-Compliance	% of Major Non-Compliance
South	13	5	6	2	15
Middle	25	7	14	4	16
North	10	10	0	0	0
TOTAL	48	22	20	6	13

Recommendations

Government

- Produce an information release to be posted on the OGC website and otherwise dispersed to industry groups advising of the non-compliance issues identified during the review so corrective measures can be taken.
- Collaborate with First Nations communities and bands to ensure their members are aware of the OGC and WLAP concerns with the illegal use of water from beaver dams and other unauthorized sources. This initiative should encourage First Nation members to immediately contact WLAP or the OGC so appropriate enforcement action can be taken.
- Develop an acknowledgment of responsibility for contractors and operators of rigs and camps to sign off on. The signoff would indicate the person has read the documents included in the permits, understands them, and agrees to comply with their requirements.
- Water removal permits need to be reviewed so that more guidance is provided in the document to water haulers. This should include instructions on exactly what water sources are covered by the permit. Water permitting should include a condition that water haulers need to carry a copy of the permit. Currently, either the hauler or the rig engineer needs to have a copy of the permit, but not both. In most cases the water haulers do not carry a copy of the permit nor are they familiar with it's conditions, they simply follow instructions from the rig boss.
- It is recommended that borrow pits containing fish not be included in water allocation due to the risk of fish kills from excessive water removal and freezing to the bottom. The Ministry of Water, Land and Air Protection should provide the OGC with a list of stocked borrow pits, the list should include GPS locations of the stocked waters. These stocked waters would be excluded from the list of approved sources.

Industry

- Industry to design and implement a program to educate their contractors and staff as to their obligations surrounding water usage, specifically: the requirements for permits to be in the possession of the water haulers and as to what constitutes acceptable water sources. An internal process needs to be implemented by companies to ensure compliance by their contractors with the standard.

Forestry practices of crews constructing seismic, camps, access roads, drilling leases and pipelines

Conclusions

Forestry issues were generally of little concern. There were a few minor issues identified and dealt with by the review teams. Issues were often of a non-significant nature, in that they did not detrimentally affect the environment. These were administrative issues, often having to do with issues of timber marking or boundary marking on pre-logging activities. The significant issues, as defined in this review, were primarily unauthorized harvest.

	Total Inspections	Compliance	Minor Non-Compliance	Major Non-Compliance	% Major non-Compliance
South	7	6	0	1	14
Middle	48	31	16	1	2
North	12	10	2	0	0
Total	67	47	18	2	3

Recommendations

Government

- Continue monitoring and inspection of forestry operations relevant to oil and gas operations. Efforts should continue to be prioritized and focus on high risk activities, high fisheries values and operators with a poor history of compliance.
- Cutting permits must specify requirements for timber harvesting, including the importance of having defined boundaries for harvesting, and the requirements for marking of timber when decked logs will be left on site for more than one day. Timber utilization requirements were unknown on many operations.
- Education of government agencies as to the legislation governing timber removal, and the specific authorities for various compliance actions. There was some confusion on the part of other agencies regarding the specific content of forest-based legislation, and the authority to conduct enforcement actions.
- Education of companies regarding the process for amendments and approvals of timber harvesting operations. Many companies do not understand the role of the different agencies involved, and the specific requirements for removal of crown timber resources.
- Produce an information release to be posted on the OGC website and otherwise dispersed to industry groups advising of the non-compliance issues identified during the review so corrective measures can be taken.

Industry

- Industry to design and implement a program to educate their contractors and staff as to acceptable forest practices. An internal process needs to be implemented by companies to ensure compliance by their contractors with the standards.

Gravel-trespass, unauthorized removal and use

Conclusions

No major problems noted

Team	Total	Compliance	Minor Non-Compliance	Major Non-Compliance	% of Major Non-Compliance
South	5	5	0	0	0
Middle	20	19	1	0	0
North	4	4	0	0	0
TOTAL	29	28	1	0	0

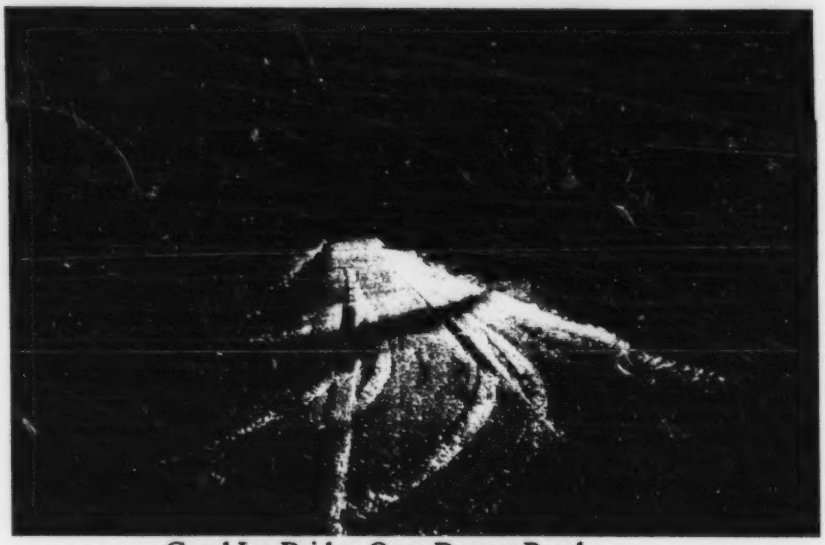
Results of targeted activities

Type	Total	Compliance	Minor Non-Compliance	Major Non-Compliance	% of Major Non-Compliance
Stream Crossings	169	74	21	74	44
Sewage Disposal	68	29	17	22	32
Well Sites	152	61	87	4	3
Special Wastes	7	3	0	4	57
Water	48	22	20	6	13
Forestry	67	47	18	2	3
Gravel	29	28	1	0	**0**
Totals	**540**	**264**	**164**	**112**	**21**

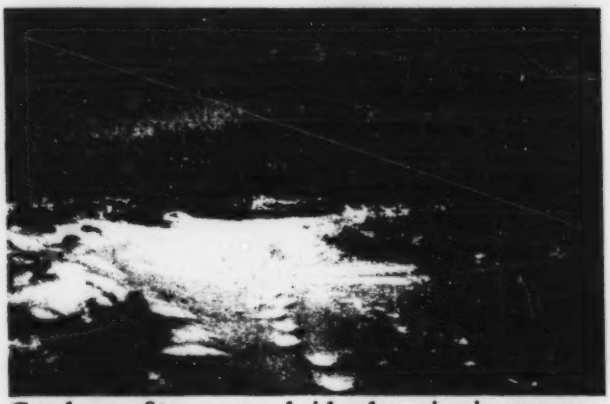
Good Practices Observed

There were many examples noted by the teams, namely:

- Road and lease construction appeared to be generally good.
- The North team found the road maintenance in the north part of the review area generally very good with little siltation entering watercourses as the weather warmed up.
- Some companies displayed best practices as the norm while others were the opposite.
- Many of the non-compliance issues identified in the January review were rectified by March.
- Murphy Oil's wellsite developments in the sensitive Chicken Creek area within the Muskwa Kechika Management Area were excellent.

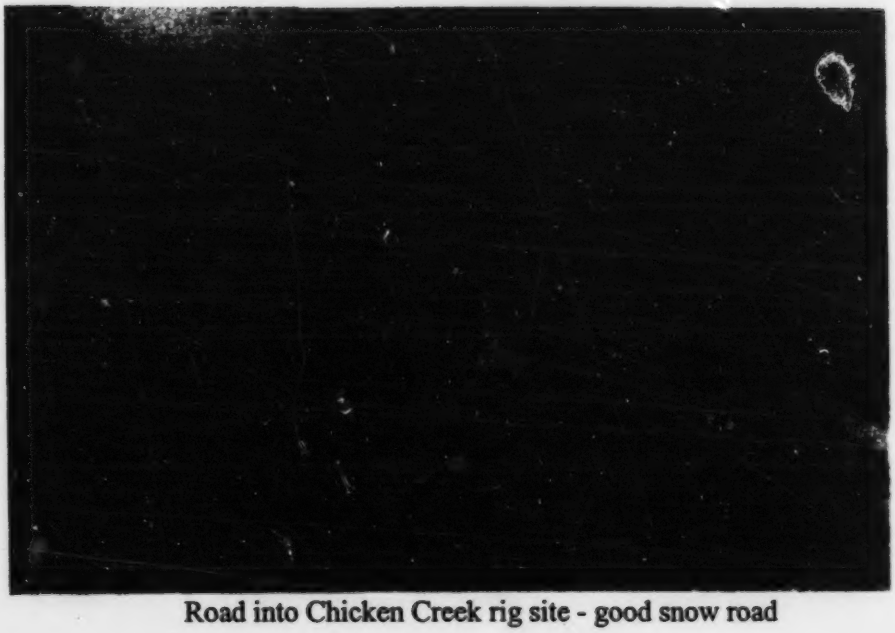


Good Ice Bridge Over Beaver Pond



Good use of temporary bridge by seismic company

Drilling rig at Chicken Creek



Road into Chicken Creek rig site - good snow road

Conclusions and Recommendations

The intent of the review was to determine the rate of compliance with applicable legislation on all oil and gas development activities in north eastern BC, and then to make recommendations to improve compliance rates where needed. The following are the recommendations for government and industry to consider.

1. Reviews should be conducted on an annual basis to encourage compliance, discourage non-compliance and identify companies achieving exceptional standards of work. Annual reviews will not only track current compliance rates but also allow the ministries and agencies to follow up on non-compliance issues identified in previous reviews to ensure an acceptable compliance rate is achieved.

2. Education programs are beneficial at all field levels. The review found many of the engineers and workers were not familiar with the legal requirements for operating in BC with respect to environmental issues. Education programs can be offered to the industry in the form of presentations, information letters, workshops and use of the internet. Government should also be developing easy to use handbooks for those working in the field. Examples of topic areas are stream crossings, waste management and water sources. These handbooks would be useful for such personnel as managers, engineers and supervisors as well as those working with equipment in the field who are expected to make decisions at a moments notice.

3. Sign-off documents should be developed by the OGC for use by drilling and other contractors in the oil and gas industry. The sign-off instrument would detail specific standards or requirements for conducting a specific activity. The contractor or person responsible would sign the document stating that they had read it, understood the requirements and agreed to comply. Such a strategy should be given broad usage and also be used to target specific compliance issues that arose during previous reviews and inspections.

4. In conjunction with the recommendation in (2), there should be annual inter-agency workshops conducted prior to the busy drilling season. Primary purposes of the workshop would be: review each agencies mandates: identify legislation and priority concerns; improve participants working knowledge of the industry by reviewing new technologies and working practices identifying areas of high activity; facilitating team building and encouraging other team projects. Participating agencies should include Forests, Pollution Prevention (WLAP), COS (WLAP), the Oil and Gas Commission, Health and the Department of Fisheries and Oceans.

5. A review of the current guidelines and legislation should be undertaken to determine if changes can be made to improve compliance. This includes the current Oil and Gas Handbook. This review should also be done in conjunction with the current review of OGC's compliance and enforcement and model.

6. Review forms need to be developed so that all agencies use the same forms. This will ensure a consistent approach. In addition, reporting formats for future compliance reviews should be standardized so that compilation of information and data will be easier.

7. Compliance terms for future field inspections have to be defined clearly so that the differences between minor and major infractions are clear to all staff participating in the review. The table on page 7 is an example of a guide for differentiating between minor and major compliance issues.

8. Companies with exceptional compliance records (results based) should be recognized and rewarded in some manner. This could include results based permitting; e.g. companies with good track records may be given more leeway or checked less frequently than those with poor records.

9. The rapidly increasing level of industrial activity needs to be complimented by a proportional increase in agency compliance and enforcement staff. Current staffing levels of Compliance and Enforcement (C&E) staff appear to be only scratching the surface of some issues that exist out on the ground.

10. A problem analysis and development of a one-window model delivery of compliance and enforcement activities should be undertaken. Such a model could conceivably result in considerable efficiencies and dramatically reduce confusion as to which agency is responsible for the statute in question.

11. Develop a results based system to increase compliance. This will have to include an "acceptable" target level of compliance for each type of activity.

12. The snowfills and ice crossings issues need to be addressed by all agencies in conjunction with DFO. This should include discussion and agreement about the composition of material used in snowfills, specifically the problem of organic and mineral soils becoming entrained in fill material. The discussions should result in standards being defined, in handbook format, for industry purposes.

13. More work has to be done between the Ministry of Health and other agencies to ensure that guidelines for sewage disposal are clearly defined and communicated to industry.

14. Water removal permits need to be reviewed so that more guidance is provided in the document to water haulers. This should include instructions on exactly what water sources are permitted. It is recommended that borrow pits containing fish not be permitted for water allocation and that the Ministry of Water, Land and Air Protection provide OGC with a list of stocked borrow pits including their locations.

15. Develop an action plan to address the issues listed above. (See below)

Action Plan for the Oil and Gas Review 2000/2001

The recommendations contained in the Oil and Gas Review Report identify a number of issues that need to be addressed by government and industry. This workplan outlines the recommended actions that should be undertaken;

1. ***Review:*** There is currently a second inter-agency compliance review scheduled for January 2002. Funding will be provided by WLAP for flying and certain other expenses. The steering committee for the initial review has agreed to stay in place for the second review.

2. ***Education:*** The members of the Steering Committee will be conducting presentations and workshops for both industry and government on the review in the next couple of months.

   - A presentation to industry will be planned in Calgary as well as at the Canadian Association of Drilling Contractors (CAODC) meeting November 6, 2001 in Fort St John

   - An information letter will be prepared by OGC for the industry and will concentrate on the primary target areas of sewage disposal, water, gravel and waste management.

   - Education and information booklets will be prepared using funding from WLAP and the OGC Environment Fund. We will also be consulting with CAPP to determine if they are prepared to partner in this exercise as well as to find out if industry already has information booklets or handbooks that may be appropriate.

3. ***Interagency Workshops:*** As part of the 2002 review, an inter-agency briefing session was conducted for the review teams in early December of 2001. As well, briefings will also be given to WLAP, OGC, MOF and other agency staff soon after the report is released.

4. ***Review of Guidelines and Legislation:*** This is currently underway by government.

5. ***Review forms and report formats:*** This is currently underway in conjunction with the planned 2002 review. The North Team report format will be used as it clearly distinguishes between minor and major compliance.

6. ***Snowfills and Ice Crossings:*** Government agencies will be preparing guidelines for both industry and government compliance officers. We will consult the DFO in this initiative. Guidelines will include concern over mineral soils, sediments and large debris in these crossings and the 2002 review will be paying particular attention to those areas identified in the 2001 review with emphasis on fish bearing streams or systems.

7. ***Sewage disposal:*** Will be part of the inter-agency workshops.

8. ***Compliance definitions:*** The chart contained on page 7 will be used in future compliance inspections. It provides a consistent set of guidelines for both industry and government.

9. ***Water Removal:*** We will be working with the OGC and Water Approvals Branch to include terms in the approvals that include instructions on exactly what water sources can be used and that water haulers carry a copy of the permit in their trucks. WLAP will provide the OGC with a list of borrow pits that have been stocked with fish and will include the exact locations. The OGC will be requested to exclude these pits from future approvals.

10. ***Results based rewards:*** The OGC will be issuing letters to companies that demonstrated good practices commending them for their superior compliance rates. In the future, as the industry moves to a results based regime, consideration may be given to these companies resulting in streamlined approval

processes and reduced intervals of inspection. There will be a greater focus given to those companies that have demonstrated poor compliance practices.

11. ***Special Waste:*** There are currently investigations underway as a result of the 2001 review. The 2002 review will continue to give special waste a high priority. The OGC will carry out a project that will create a database for sites where special wastes resulting from drilling operations (invert cuttings) are stored. The database will contain information on those sites created prior to 1996. In that year inverts became the permitting responsibility of WLAP. The sites will be evaluated to ensure they are not a threat to the environment, public health or safety. There will also be an increased sharing of information between agencies pertaining to the transportation and disposal of special waste.

12. A review is also underway to classify advanced drilling muds and their suitability for use in BC. This review will also look at the procedures for use, storage and disposal of these drilling wastes

13. ***Increase in compliance staff:*** The OGC currently has a proposal to government to increase compliance staff by 40-50% in the next three years to enable them to effectively meet the demands of a rapidly expanding industry and activity level.

14. ***One-window delivery of compliance and enforcement:*** There is an inter-agency and industry group currently working on this initiative.

15. ***Results based system:*** See recommendation #10. This may be part of the one-window model currently being worked on.

The responsibility for increasing compliance rests with both government and industry. A collaborative and stewardship approach has to be taken to successfully undertake this venture. Both partners will have to make a commitment in resources and corporate will to ensure the goal of high compliance rates and public expectations are met.

Thanks goes to those agencies and Ministries who worked together to organized and conducted the review. Their dedication to the vision of a vibrant oil and gas industry conducting business in an environmentally responsible manner is shared by many members of the industry interviewed as part of this review process. They are to be commended for commitment to excellence.

A compilation of team field reports is available upon request.

Key contacts for the contents of this report are:
Andy Ackerman, Fish & Wildlife Manager, Peace – (250) 787-3426
Gary Miltenberger, Acting Deputy Commissioner, Oil & Gas Commissioner – (250) 261-5732
Ben Mitchell-Banks, Acting Director, Compliance and Enforcement, OGC- (250) 261-5767
Lance Ollenberger, Operations Manager, Ministry of Forests, Fort St John – (250) 787-5600